

Inverse Functions Worksheet

Find a table of values for each function and its inverse.

1. a. $f(x) = 3x + 1$

Function	
x	f(x)

Inverse	
x	f ⁻¹ (x)

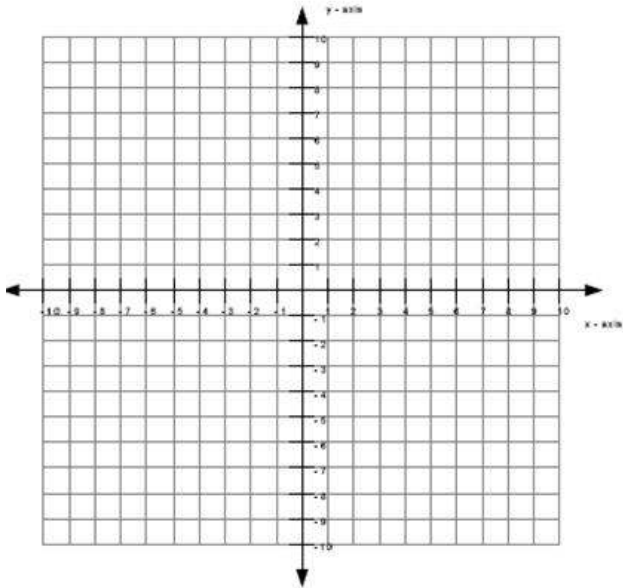
b. $f(x) = (2 - x)^2$

Function	
x	f(x)

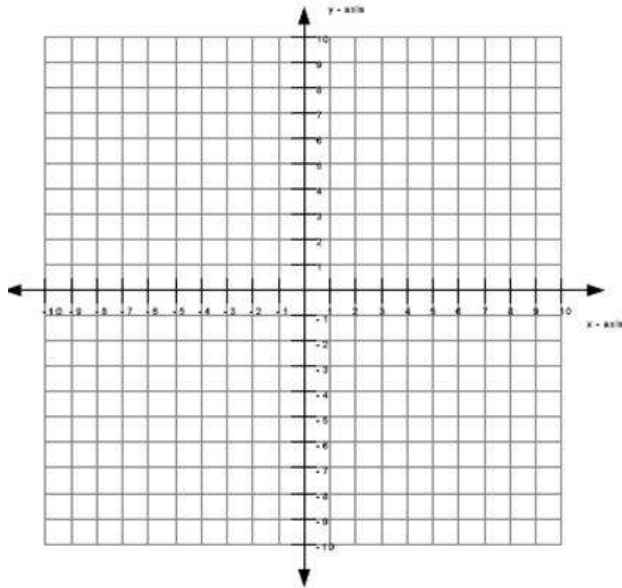
Inverse	
x	f ⁻¹ (x)

2. Graph each function, its inverse, and their line of symmetry. Label the function and its inverse on each graph.

a. $f(x) = \frac{1}{2}x + 1$



b. $f(x) = (x - 2)^2 + 3$



3. Find the domain and range of the each function and the domain and range of its inverse in problems 2 (a-b) above.

a. $f(x) = \frac{1}{2}x + 1$

$f(x)$ Domain: _____ Range: _____

$f^{-1}(x)$ Domain: _____ Range: _____

b. $f(x) = (x - 2)^2 + 3$

$f(x)$ Domain: _____ Range: _____

$f^{-1}(x)$ Domain: _____ Range: _____

4. For each function in problems 2 and 3 (a-b) above, identify whether its inverse is or is not a function. Explain your answer in complete sentences:

a. Is the inverse of $f(x) = \frac{1}{2}x + 1$ a function? Explain.

b. Is the inverse of $f(x) = (x - 2)^2 + 3$ a function? Explain.

5. Let's apply our knowledge of functions and their inverses to a real world problem:

To make a long-distance call, your phone company charges \$1.50 to make the connection, and an additional \$0.10 for every minute that you are on the line once connected.

a. Write an equation for the price of a long-distance call, p , in terms of the length of the call in minutes, m :

b. When you get the phone bill, you see that your sister made a long-distance call that cost \$2.75. How long was she on the phone?

c. Think about how you solved part (b). Write an equation to determine m in terms of p . (That is, how do you calculate the length of a call based on its price?)

6. Find the inverse of each function below using the Flip and Find method.

a. $f(x) = 3x + 4$

b. $f(x) = (2x - 3)^2 - 1$

c. $f(x) = \frac{x+5}{-5}$

d. $f(x) = \sqrt{(x - 5)}$